CLAIMS:

1. An aqueous coating solution for providing a corrosion resistant coating to a metal surface including:
a water soluble silicate; and
at least one metal ion (X) selected from those having a valence of less than or equal to +4; wherein said coating solution forms an aqueous silicate-X network such that the silicate remains soluble, and wherein on contact with a metal surface (Y) a coating comprising of silicate-X and Y is formed.

2. A coating solution according to claim 1, wherein the coating solution is composed such that the resulting coating layer on the metal surface has a pH_{IEP} of less than about 3.5 at the atmosphere-coating interface.

3. A coating solution according to claim 2, wherein the coating solution is composed such that the resulting coating layer on the metal surface has a pH_{IEP} of less than 2.5 at the atmosphere-coating interface.

4. A coating solution according to claim 1, wherein the water soluble silicate is selected from an alkali metal or ammonium silicate, meta-silicate, ortho-silicate, pyro-silicate, waterglass, silicic acid, silica, colloidal silica, silicon dioxide or an organic-silicate precursor.

5. A coating solution according to claim 4, wherein the water soluble silicate is selected from the group consisting of sodium silicate or potassium silicate.

6. A coating solution according to claim 1, wherein the metal ion X is of an element selected from the group consisting of Al, B, Zr and Ti.

7. A coating solution according to claim 1, having a concentration of water soluble silicate of from 1 ppm to the dispersion limit and a ratio of X to Si from 4:1 to 1:100.

8. A coating solution according to claim 7, wherein the ratio of X to Si is from 1:1 to 1:50.

9. A coating solution according to claim 1, including one or more additional components as a active corrosion inhibitor.

10. A coating solution according to claim 9, wherein said additional component(s) are selected from the rare earths (lanthanides) or the transition metals.

11. A coating solution according to claim 10, wherein said additional component(s) are selected from Ce, Mo, W, Mn and V.

12. A coating solution according to claim 11, wherein said additional component includes Ce.

13. A method for the treatment of a metal surface, including applying to the metal surface an aqueous coating solution containing a water soluble silicate and at least one metal ion X selected from those having a valence of less than or equal to +4, thus forming a coating layer on the metal surface having a silicate network with at least some of the Si atoms in the silicate network being replaced with said metal ions X and incorporating metal ions Y from the metal surface being coated.

14. A method according to claim 13, including applying to the metal surface an aqueous solution comprised of silicate ions and aluminium ions to coat the surface of the metal substrate with an aluminosilicate coating.

15. A method according to claim 14, wherein the metal surface includes a zinc-containing metal surface.

16. A method according to claim 15, wherein the metal surface includes zinc, a zinc alloy or a galvanised metal surface.

17. A method according to claim 14, wherein aluminosilicate coating having a pH_{IEP} from 2 to 2.5 is applied to the metal surface from an aqueous solution containing silicate ions and aluminium ions.

18. A method according to claim 17, wherein the solution is applied by spraying, painting or dipping.

19. A method according to claim 14, wherein an aqueous solution comprised of silicate ions and aluminium ions and further including Ce(IV)/Ce(III) ions as an additional corrosion inhibitor is applied to the metal surface.

20. A method according to claim 19, wherein zinc metal, or zinc containing metal is dipped in the aqueous solution.

21. A method according to claim 13, including dipping a zinc-containing metal in an aqueous solution comprised of silicate ions and aluminium ions, and optionally including cerium ions, to form a diffusion layer at the metal surface, and for a time sufficient for an aluminosilicate coating to form on the metal surface, the formed aluminosilicate coating including within its structure zinc ions diffused from the zinc-containing metal surface, and optionally cerium ions.

22. A method according to claim 21, wherein the zinc containing metal is a galvanized metal.

23. A method according to claim 22, wherein the galvanized metal is galvanized steel.

24. A method according to claim 22, wherein the galvanized metal includes a freshly galvanized metal surface straight out of the molten zinc bath and quenched in the aqueous coating solution.

25. A method according to claim 13, wherein the coating composition that results is $Al_{(a)}Si_{(b)}Zn_{(c)}Ce_{(d)}O_x$ where $0<a\leq1$, $0<b\leq1$, $0<c\leq1$, $0\leq d\leq1$ and $a+b+c+d = 1$, with the overall concentration of the aqueous components ranging from 1ppm to 20wt%.

26. A metal surface having an aluminosilicate coating, the coating including diffused metal ions, which have diffused from the metal surface into the aluminosilicate coating during application of the coating to the metal surface, the coating having a pH_{IEP} of less than 3.5 at the atmosphere-coating surface.